

Amendment to the Claims

The listing of claims will replace all prior versions, and listings, of claims in this application:

Claims 1-34 canceled.

35. (Withdrawn and Currently Amended) A method for removing a closure on a container comprising:

providing a system according to claim 49

providing the a closure according to claim 1 arranged on a container;

providing the a rotatable threaded spindle

bringing the rotatable threaded spindle into proximity with the recess on the first end wall of the closure;

screwing the threaded spindle into the first set of threads on the recess; and

moving the threaded spindle having the closure threaded thereon away from the container, thereby removing the closure from the container.

36. (Withdrawn) A method according to claim 35, wherein the recess comprises a second end wall disposed opposite the first end wall and the threaded spindle is screwed into the depression until it reaches the second end wall.

37. (Withdrawn and Currently Amended) A method according to claim 35, wherein the weight of the closure and the engagement of the threaded spindle with the threaded recess is sufficient to unscrew the closure from the threaded spindle when the closure is not supported on the container, and the method further comprises providing the a clutch having an element adapted to engage the closure and apply a rotational force to the closure, engaging the element with the closure to prevent the spindle from being unscrewed from the closure.

38. (Withdrawn) A method according to claim 37, wherein a portion of the first end wall that surrounds the recess comprises a plurality of ramp-shaped

protrusions arranged along the radial perimeter of the first end wall and extend in a direction away from the second end, and wherein the elements of the clutch and the ramp shaped protrusions abut each other during the engagement of the element with the closure to prevent rotation of the closure relative to the clutch.

39. (Withdrawn and Currently Amended) A method for installing a closure on a container comprising:

providing the system according to claim 49;

providing the a closure according to claim 1;

providing the a rotatable threaded spindle having the closure screwed thereon, wherein the weight of the closure and the engagement of the threaded spindle with the threaded recess is sufficient to unscrew the closure from the threaded spindle when the closure is not supported on the container;

providing the a clutch having an element adapted to engage the closure and apply a rotational force to the closure;

engaging the element with the closure to prevent the spindle from being unscrewed from the closure;

moving the threaded spindle having the closure screwed thereon into proximity with an opening on the container; and

rotating the spindle and clutch in a direction to unthread the spindle from the closure.

40. (Withdrawn) A method according to claim 39, wherein the closure has a second set of threads disposed on the inner or outer cylindrical wall having a direction which is opposite that of the first set of threads, and at least the opening of the container is cylindrical and has threads disposed in the vicinity of the opening to receive the second set of threads to form a sealing closure, and

wherein the rotation of the spindle and clutch and the engagement of the clutch element with the closure provides sufficient rotational force to thread the closure onto the container.

41. (Withdrawn) A method according to claim 40, wherein a portion of the first end wall that surrounds the recess comprises a plurality of ramp-shaped protrusions arranged along the radial perimeter of the first end wall and extend in a direction away from the second end, and wherein the elements of the clutch and the ramp shaped protrusions abut each other during the engagement of the element with the closure to prevent rotation of the closure relative to the clutch until a predetermined torque is reached, and wherein when the predetermined torque is reached, the clutch and spindle rotate relative to the closure and the spindle become unthreaded from the closure, thereby releasing the closure.

42. (Withdrawn) A method according to claim 41, further comprising moving the spindle and the clutch away from the closure when the closure is released from the spindle.

43. (Withdrawn and Currently Amended) An analyzer comprising:
a metering probe capable of dispensing or aspirating a liquid;
an incubator;
a measurement system for measuring a parameter of a sample; and a system according to claim 49.

~~a combination container for containing a reagent and a closure comprising the closure as claimed in claim 1 and a container having an opening at one end and adapted to receive the closure; and~~

~~an apparatus for removing and installing the closure on the reagent container comprising:~~

~~a threaded rotatable spindle adapted for threading into a closure having a threaded recess and for applying a rotational force to remove the closure; and~~

~~a clutch having an element adapted to engage the closure and apply a rotational force to the closure.~~

Claims 44-48 canceled.

49. (New) A system comprising:

(i) a closure for a container comprising:

an inner cylindrical wall having first and second ends and defining a space;

an outer cylindrical wall opposite the inner cylindrical wall having said first and second ends to form an outer surface of the closure;

a first end wall extending across said first end, wherein said first end wall comprises a recess extending at least partially into said space, and a first set of threads disposed on said recess having a right hand direction or a left hand direction; and

a second set of threads disposed on said inner or outer cylindrical wall having a left hand direction or right hand direction which is opposite that of the first set of threads;

(ii) a container having an opening at one end adapted to receive the closure; and

(iii) an apparatus for removing and installing the closure on the container comprising:

a threaded rotatable spindle adapted for threading into the closure having a threaded depression and for applying a rotational force to remove the closure; and

a clutch having an element adapted to engage the closure and apply a rotational force to the closure.

50. (New) A system as claimed in claim 49, wherein the threads on the spindle are coarse.

51. (New) A system as claimed in claim 49, wherein the spindle further comprises a shaft portion and the clutch further comprises a sleeve surrounding the at least a portion of the shaft portion, whereby the clutch is translatable in a direction along the axis of the spindle, but is stationary relative to the spindle in the direction of rotation.

52. (New) A system as claimed in claim 51, wherein the shaft is square or has splines.

53. (New) A system as claimed in claim 51, further comprising a spring for biasing the clutch in a direction of the threaded spindle to engage the closure and for apply an axial force to the closure.

54. (New) A system as claimed in claim 51, wherein the element adapted to engage the closure and apply a rotational force to the closure is located on the end of the sleeve substantially perpendicular to the spindle.

55. (New) A system as claimed in claim 54, wherein the element comprises a plurality of protrusions arranged along the radial perimeter of the end of the sleeve extending in a direction toward the spindle and adapted to engage corresponding ramp-shaped protrusions on the closure.

56. (New) A system as claimed in claim 55, wherein a cross-section of the protrusions is in the shape of a ramp-shaped triangle having a flat top surface.

57. (New) A system as claimed in claim 56, further comprising a carriage for holding and transporting the spindle and clutch and a motor for rotating the spindle and clutch.

58. (New) A system as claimed in claim 57, wherein the motor is mounted in the carriage and further comprising a drive pulley on the spindle and a belt to connect the drive pulley with the motor.

59. (New) A system as claimed in claim 57, further comprising a radial drive motor for moving the carriage in a horizontal position from a position over the closure to a position away from the closure.

60. (New) A system as claimed in claim 55, further comprising a vertical drive motor for moving the carriage in a vertical direction.

61. (New) A system as claimed in claim 55, further comprising sensors for detecting a vertical and radial position of the spindle.

62. (New) A system as claimed in claim 49, further comprising the closure, wherein the threads on the spindle and the threaded depression are coarse.

63. (New) A system as claimed in claim 62, wherein the weight of the closure causes the spindle and closure to become unscrewed without the element on the clutch engaging the closure to prevent rotation of the closure relative to the spindle.

64. (New) A system as claimed in claim 49, wherein said first set of threads have a left hand direction, and said second set of threads have a right hand direction.

65. (New) A system as claimed in claim 64, wherein the closure comprises a plurality of ramp-shaped protrusions which extend in a direction away from the closure.

66. (New) A system as claimed in claim 64, wherein a portion of the end wall surrounds the depression and comprises a plurality of ramp-shaped protrusions arranged along the radial perimeter of the end wall and extend in a direction away from the second end.

67. (New) A system as claimed in claim 66, wherein the ramp-shaped protrusions are adapted to engage corresponding elements on the element.

68. (New) A system as claimed in claim 49, wherein said second set of threads is disposed on said inner cylindrical wall and said outer cylindrical wall comprises a plurality of vertically extending ridges.

69. (New) A system as claimed in claim 49, wherein the recess comprises a second end wall disposed opposite the first end wall.

70. (New) A system as claimed in claim 69, wherein the recess is adapted to receive a threaded spindle and the second wall arrests the downward movement of the threaded spindle.

71. (New) A system as claimed in claim 49, further comprising a plug seal located between said recess and outer cylindrical wall adapted to frictionally engage the a container being sealed.

72. (New) A system as claimed in claim 49, further comprising a crush rib located at the first end wall and adapted to be biased against a container when the closure is on the container to provide a sealing effect.

73. (New) A system as claimed in claim 49, further comprising a separate resilient seal to engage the container.

74. (New) A system as claimed in claim 49, wherein the seal comprises a gasket seal.

75. (New) A system as claimed in claim 49, wherein container has an opening at one end adopted to receive the closure, wherein at least the opening of the container is cylindrical and has threads disposed in the vicinity of the opening adapted to receive the second set of threads.

76. (New) A system as claimed in claim 75, wherein the threads are disposed on the outer surface of the container and the second set of threads are disposed on the inner cylindrical wall.

77. (New) A system as claimed in claim 75, wherein the container comprises two cylindrical containers connected by a rib to prevent rotation of the containers when the closures are being removed.

78. (New) A system as claimed in claim 77, wherein one of the two containers is tapered at the bottom.

79. (New) A system as claimed in claim 49, wherein the first set of threads are dual lead threads.

80. (New) A system as claimed in claim 76, wherein the threads on the spindle are dual lead.